

AMENDMENTS TO THE CLAIMS

This Listing of Claims replaces all prior versions, and listings, of claims in this application.

1.-60. (Canceled)

61. (Previously Presented) A method comprising:

advancing a cannula percutaneously through a blood vessel to a region of interest, the cannula having a proximal end, a distal end, and an exterior surface at or adjacent the distal end of the cannula axially coupled to a balloon,

inflating the balloon from a first diameter to a different second diameter that is at least equivalent to an inner diameter of a blood vessel to occlude the blood vessel at the region of interest;

infusing a treatment agent to the region of interest distal to the balloon during the occlusion of the blood vessel;

perfusing a blood and a treatment agent flow between a location in the blood vessel proximal to the balloon and the region of interest distal to the balloon.

62. (Previously Presented) The method of claim 61, wherein perfusing includes:

perfusing blood and treatment agent via a lumen extending through the cannula from a location proximal to the balloon to a location distal to the balloon, via a proximal hole through the exterior surface of the cannula and to the lumen at a location proximal to the balloon, and a distal hole through the exterior surface of the cannula and to the lumen at a location distal to the balloon.

63. (Previously Presented) The method of claim 61, wherein inflating includes inflating the balloon for a first period of time to occlude the blood vessel for the first period of time and perfusing includes deflating the balloon for a second period of time; and at least one more repetition of inflating, infusing, and deflating.

64. (Previously Presented) The method of claim 61, wherein perfusing includes:

retracting back a guidewire disposed through a guidewire lumen extending from the proximal end to the distal end of the cannula and exiting an opening in the cannula distal to a balloon, for a first period of time;

wherein retracting includes retracting a distal end of the guidewire from a location distal to at least one hole from the guidewire lumen through the exterior surface of the cannula and proximal to the balloon to a location proximal to the at least one hole to cause perfusion through the at least one hole.

65. (Previously Presented) The method of claim 64, further comprising advancing the guidewire to a location distal to the at least one hole to prohibit a blood and a treatment agent perfusion between a location in the blood vessel proximal to the balloon and the region of interest, for a second period of time, and repeating infusing, retracting and advancing at least once more.

66. (Previously Presented) The method of claim 64, wherein retracting includes retracting a distal end of the guidewire to control an amount of a blood and a treatment agent perfusion between a location in the blood vessel proximal to the balloon and the region of interest by adjusting the guidewire to extend or retract a distal end of the guidewire to a location amongst a plurality of the at least one hole to allow a blood and a treatment agent to perfuse between the holes and the lumen at a selected perfusion rate.

67. (Original) The method of claim 61, wherein infusing includes infusing a volume of a progenitor cell suspension including bone marrow-derived progenitor cells.

68. (Original) The method of claim 61, wherein inflating includes:
increasing an axial length of the balloon;
maintaining the inflation pressure on the inner diameter of the blood vessel.

69.-78. (Canceled)

79. (Previously Presented) The method of claim 61, wherein perfusing comprise perfusing the blood vessel coupled by human vasculature to a beating heart.

80. (Previously Presented) The method of claim 61, wherein perfusing comprise perfusing the blood vessel in a person having a beating heart.

81. (Previously Presented) The method of claim 61, wherein perfusing includes perfusing blood via a lumen extending through the cannula from a location proximal to the balloon to a location distal to the balloon, via a proximal hole through the exterior surface of the cannula and to the lumen at a location proximal to the balloon, and a distal hole through the exterior surface of the cannula and to the lumen at a location distal to the balloon.

82. (Previously Presented) The method of claim 61, wherein perfusing comprises perfusing a blood flow from a location in the blood vessel proximal to the balloon, to a location in the region of interest distal to the balloon.

83. (Previously Presented) The method of claim 63, wherein retracting includes retracting a distal end of the guidewire to the location proximal to the at least one hole proximal to the balloon, to allow the perfusion.

84. (Previously Presented) The method of claim 1, wherein perfusing comprises perfusing blood or treatment agent.

85. (New) The method of claim 1, wherein perfusing comprises perfusing the blood and treatment agent flow from the location in the blood vessel proximal to the balloon into the region of interest distal to the balloon.